Multi-Probiotics

Multi-Probiotics

Health Benefits of Probiotics

Health benefits of probiotics are being vigorously investigated today at various medical and research centers around the world. [5,6,7,8,9,10,11] Competent clinical studies are accumulating and showing that specific probiotic bacteria can alleviate or prevent diverse intestinal disorders and reduce the risk of some intestinal diseases. Another interest is to find alternatives to classical antibiotic treatments because of rapid development of antibiotic resistance, as well as to a multitude of negative side effects and allergic reactions.

Friendly Bacteria normally reside within the GI tract. They are generally referred to as Probiotics, and confer protection from bacteria, yeast, fungi and parasites when present in abundant supply. Friendly Bacteria works to restore

Effective in protecting against infection from a variety of microorganisms, Multi-Probiotics help combat yeast (candida) overgrowth, and relief from symptoms of candidiasis. They support normal bowel eliminatory functions and waste removal, improve overall digestion and general health, and relieve diarrhea.

The density of microorganisms in the gut flora increases dramatically from 10-1,000 CFU/ml in the stomach to 10-100 billion CFU/gm in the large intestine[1] and these belong to as many as 400 different species. Bacteria have been estimated to constitute 35-50% of the volume of the contents in the human colon.

They profoundly influence our nutritional, physiologic and protective processes. Both direct and indirect defensive functions are provided by the normal microbiota. Specifically, gut bacteria directly prevent colonization by pathogenic organisms by competing for essential nutrients or for epithelial attachment sites. By producing antimicrobial compounds, volatile fatty acids, and chemically modified bile acids, indigenous gut bacteria also create a local environment that is generally unfavorable for the growth of enteric pathogens.[12]

Probiotics need to be ingested regularly for any health promoting properties

to persist. It is possible to manipulate the composition of the gut microflora in adults through dietary supplementation with probiotics. This concept is gaining popularity throughout the world.

Probiotic effects may be due to direct action, modulation of local immunity, modifications of gut ecology or a combination of these effects (3). Probiotics may influence differently the immune response and the immunomodulatory effect of probiotics is strain-dependent.

What Can Destroy Your Body's Good Bacteria?

- Antibiotics
- Stress
- Steroids
- Poor Diet
- Aging
- Environmental Pollutants
- Infections
- Alcohol
- Clothing
- Vaginal Hygiene

The Value of Taking Probiotics

1. Increased nutritional value (better digestibility, increased absorption of vitamins and minerals).
2. Promotion of intestinal lactose digestion.
3. Positive influence on intestinal and urogenital flora (antibiotics and radiation induced colitis, yeast infections and vaginitis in women).
4. Prevention and reduction of intestinal tract infections (bacteria or virus induced, Candida enteritis, Helicobacter Pylori).
5. Regulation of gut motility (constipation, irritable bowel syndrome).
6. Decreased incidence and duration of diarrhea (antibiotic associated, Clostridium difficile, travelers, and rotaviral).
7. Maintenance of mucosal integrity.
8. Improvement of immune system.
9. Prevention of colon cancer.
10. Reduction of catabolic products eliminated by kidney and liver.
11. Prevention of osteoporosis.
12. Better development (growth).
13. Anti-carcinogenic, anti-mutagenic and anti-allergic activities.
14. Feeling of well-being.

15. Anti-Candida properties.

Ingredients of Multi-Probiotics

-L. Acidophilus *Lactobacillus acidophilus*

- Lactobacillus acidophilus is found primarily in the small intestine
- It produces natural antibiotics (lactocidin & acidophilin), thereby, increasing your immune system's resistance against bad bacteria and fungus i.e. Candida albicans, Salmonella, E. coli, and Staphylococcus aureus
- It implants itself on the intestinal walls, the lining of the vagina, cervix and urethra

-L. Rhamnosus *Lactobacillus rhamnosus*

For years it was assumed that Lactobacillus acidophilus was the most beneficial form of the good bacteria. However, recent research has revealed that Lactobacillus rhamnosus is just as important for good bacteria supplementation. L**actobacillus rhamnosus** is a healthier species of good bacteria and colonizes in your gut mucosa.

This is one of the most thoroughly studied probiotic strains. Its advantages in the treatment of gastrointestinal disorders are well documented. It has been associated with the alleviation or prevention of disorders such as lactose intolerance, viral and bacterial diarrhea, adverse effects of abdominal radiotherapy, constipation, inflammatory bowel disease, and food allergy according to Applied Environmental Microbiology, Jan. 1999. It has been shown to inhibit the growth of tumors. It is an organism of human origin that survives in the gastrointestinal tract, and has shown evidence proving its ability to inhibit the formation of human colon cancers. L. rhamnosus has demonstrated an increased resistance to vaginitis and urinary tract infections. More recently, there has been evidence linking a lactobacilli vaginal deficiency with sexually transmitted diseases, including AIDS. It has also been shown to inhibit the growth of a variety of bacterial species. One researcher reports, L. rhamnosus may be considered as one of the most important lactobacilli, if not the best.

-Streptococcus Lactis The genus Streptococcus consists of Gram-positive spherical bacteria that grow in chains and ferment sugars to lactic acid. It is this last property, converting sugars into lactic acid during growth, which is useful when streptococci are used to convert milk into curds for cheesemaking or into yogurt. The species *Streptococcus lactis* is the most common bacterium used for this purpose.

Other species of the genus Streptococcus, however, are responsible for a variety of diseases in humans.

- Bifidobacterium Longum Bifidobacteria: Bifidobacteria constitute a major part of the normalintestinal microflora in humans throughout life. They appear in the stools a few days after birth and increase in number thereafter. The number of bifidobacteria in the colon of adults is 108 - 1011 CFU/gram, but this number decreases with age.

- B. Bifidum. *Bifidobacterium bifidum*

B. bifidum increases the colon's fermentation of cellulose. Studies conducted on lactose malabsorbers using these strains have shown improved digestion along with the elimination of intolerance symptoms such as bad breath, bloating, gas and stomach cramps

- Bifidobacterium bifidum reside mainly in the mucous membrane of the large intestine and vaginal tract
- Digests lactose
- Produces the most beneficial form of lactic acid and acetic acid
- Ferments indigestible fibers which produces more energy
- Synthesizes some vitamins and aids mineral absorption (calcium, magnesium and zinc)
- Inhibits the growth of Salmonella sp., Listeria, Shigella, E. coli and Clostridium per fringens by crowding out these bad bacteria and eating their nutrients
- Fights the bad bacteria in your body by lowering the intestinal pH through production of fatty acids
- Absorbs large quantities of ferrous ions, inhibiting the growth of bad bacteria
- Aids constipation and diarrhea with lactic acid production

Bifidobacterium bifidum was originally isolated from the large intestine (colon) of humans where it can be found at high concentrations. It composes a majority of the beneficial microflora which produce acids to retard colonization of

putrefactive bacteria such as E. coli, Clostridium, and Salmonella. This micoorganism has the ability to protect the body against rotavirus diarrhea and is a supportive therapy for intestinal infections, especially in relation to colon health and its suppressive effect on tumors. It is well tolerated without side effects, and reduces the inflammatory response of the colon and stimulates the body's fluid immunity. Strains of this species have been used for the treatment of digestive disorders in infants, enterocolitis, constipation, cirrhosis of the liver, imbalance of intestinal flora following antibiotic therapy, and for promotion of intestinal peristalsis. Common synonyms for this bacterium are Bacillus bifidus, Bacterium bifidum, Lactobacillus bifidus, and Lactobacillus parabifidus

-

- S. Thermophilus *Streptococcus thermophilus*

- Breaks down milk products by producing lactase (helps individuals that are lactose intolerant)
- Destroys Pseudomonas sp., E. coli, Staphylococcus aureus, Salmonella sp., and Shigella
- Produces Methanol acetone, a potent anti-pathogenic agent

Additional developments in the field of probiotics require cooperation between microbiologists, gastroenterologists, immunologists, nutritionists and food technologists reflecting the multidisciplinary nature of functional food research.

References

1. Holzapfel WH, Haberer P et al. "Overview of gut flora and probiotics". Int J of Food Microbiol 1998;41:85-101.
2. Balch JF, Walker M. "Heartburn and what to do about it". Avery Publishing Group, New York, 1998.
3. Marteau P, Rambaud JC, "Probiotiques en gastroenterologie: bases rationelles, effet demontres et perspectives". Hepato-Gastro, 1998;5:267-273.
4. Collins MD, Gibson GR. "Probiotics, prebiotics, and symbiotics: approaches for modulating the microbial ecology of the gut". Am J Clin Nutr 1999; 69 (suppl):1052S-7S.
5. Shortt C. "Living it up for dinner". Chemistry & Industry 1998;8:300-303.
6. Bengmark S, "Ecological control of the gastrointestinal tract. The role of probiotic flora". Gut 1998;42:2-7.
7. Hanson LA, Yolken RH ed. "Probiotics, other nutritional factors, and intestinal microflora". Lippincott-Raven, Philadelphia, 1999.

8. Orrhage K., Nord C.E. "Bifidobacteria and Lactobacilli in human health". Drugs Exptl. Clin. Res. 2000;XXVI(3): 95-111.
9. von Wright A., Salminen S. "Probiotics: established effects and open questions". Eur J Gastroenterol Hepatol 1999;11:1195-1198
10. Schultz M., Balfour S., "Probiotics and Inflamatory Bowel Diseases". American J. Gastroenterology Suppl. 2000;95:S19-S21
11. Balish E., Wagner R.D., "Probiotic bacteria for prophylaxis and therapy of candidiasis". Rev. Iberoam. Micol. 1998;15:261-264.
12. Mackie R., Gaskins H.R., "Gastrointestinal microbial ecology". Science & Medicine Nov./Dec. 1999.
13. Levy J., "The effects of antibiotic use on gastrointestinal function". American J. Gastroenterology Suppl. 2000;95:S8-S10.
14. Wolfson D., "Turning Pro: The myriad benefits of probiotics". Health & Nutrition Breakthroughs, Aug. 1999, 12-14.
15. Vanderhoof J.A., "Probiotics and inflammatory disorders in infants and children". Journal of Pediatric Gastroenterology and Nutrition 2000;30:S34-S38.
16. Rolfe R.D., "The role of probiotic cultures in the control of gastrointestinal health". Journal of Nutrition 2000;130:396S-402S.
17. Dugas et al. "Immunity and Probiotics". Immunology Today 1999;20:9:387-340.

FEMS Immunol Med Microbiol 2002 Sep 6;34(1):59 Related Articles, Links

Immune protection mediated by the probiotic Lactobacillus rhamnosus HN001 (DR20) against Escherichia coli O157:H7 infection in mice.

Shu Q, Gill H. Milk and Health Research Centre, Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand

This study investigated the protective effects of feeding the immunoenhancing probiotic Lactobacillus rhamnosus HN001 against Escherichia coli O157:H7 infection in murine (BALB/c and C57BL/6 mice) challenge infection models. Mice were fed milk-based diets supplemented with L. rhamnosus HN001 (3x10(8) cfu g(-1)) for 7 days prior to and following oralchallenge with E. coli O157:H7. Morbidity and feed intake were measured for 1 week following challenge; pathogen translocation to spleen, liver and blood, and humoral and cellular immunological responses (specific antibody and phagocytosis) were measured in a sub-sample of ostensibly healthy animals 1 week post-challenge. Results showed that, after challenge, L. rhamnosus HN001-fed mice exhibited lower cumulative morbidity and bacterial translocation rates, compared to non-probiotic-fed control mice. Significantly higher intestinal anti-E. coli IgA responses and blood leucocyte phagocytic activity were recorded among probiotic-fed mice compared to controls. These results demonstrate that feeding the probiotic L. rhamnosus HN001 to mice can reduce the severity of E. coli O157:H7 infection, and suggest that this reduction may be associated with enhanced humoral and cellular immune responses.

Ann Nutr Metab 2002;46(3-4):159-62 Related Articles, Links

Effect of probiotics on constipation, fecal azoreductase activity and fecal mucin content in the elderly.

Ouwehand AC, Lagstrom H, Suomalainen T, Salminen S. Department of Biochemistry and Food Chemistry, University of Turku, Finland.

Background: Constipation is a common problem in elderly subjects, probiotics have been suggested to improve intestinal motility and reduce fecal enzyme activity. Methods: Elderly subjects (n = 28) were enrolled in an open parallel study. The subjects were divided into 3 groups: 1 control group receiving juice; 1 group receiving juice supplemented with Lactobacillus reuteri, and 1 group receiving juice supplemented with Lactobacillus rhamnosus and Propionibacterium freudenreichii. During the first 3 weeks all subjects consumed unsupplemented juice. In the subsequent 4 weeks, the subjects received their designated juice. During the last 3 weeks, all subjects again received unsupplemented juice. From the subjects, defecation frequency, laxative use, fecal pH, mucin content and azoreductase activity were assessed during the last week of each period. Results: The subjects receiving the L. rhamnosus/P. freudenreichii-supplemented juice exhibited a 24% increase in defecation frequency. However, no reduction in laxative use was observed. The fecal azoreductase activity was also significantly reduced in this group. No changes in fecal pH or mucin excretion were observed. Conclusion: Some relief from constipation may be observed with the combination of L. rhamnosus/P. freudenreichii. This probiotic combination also reduced fecal enzyme activity. The tested probiotics did not affect the mucosal barrier.

Med Microbiol Immunol (Berl) 2002 May;191(1):49-53 Related Articles, Links

Dietary intake of Lactobacillus rhamnosus HNOO1 enhances production of both Th1 and Th2 cytokines in antigen-primed mice. Cross ML, Mortensen RR, Kudsk J, Gill HS.

Milk & Health Research Centre, Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand. M.L.Cross@massey.ac.nz

Probiotic lactobacilli have been proposed as a potential oral bacteriotherapeutic means of modulating immune phenotype expression in vivo, via their ability to promote cytokine production. This study investigated the ability of a known interferon (IFN)gamma-promoting probiotic (Lactobacillus rhamnosus HNOOI) to modulate cytokine production in mice expressing an on-going Th2-type immune response. BALB/c mice were primed to

ovalbumin in alum adjuvant to invoke antigen-specific Th2 cytokine-secreting cell populations. Mice that were fed Lb. rhamnosus HN001 during antigen sensitization produced higher levels of lymphocyte-derived IFNgamma, but also interleukin (IL)-4 and IL-5, in comparison to control animals. Although HN001 was additionally shown to induce pro-IFNgamma monokine (IL-12, IL-18) secretion in macrophages in vitro, its ability to invoke mixed lymphocyte cytokine production during an on-going Th2-type immune response in vivo suggests that this probiotic is a general immunostimulatory agent, in contrast to the pro-Th1/anti-Th2 immunoregulation reported for some strains of IFNgamma-promoting lactobacilli.

J Food Prot 2002 Jul;65(7):1188-91 Related Articles, Links
Antifungal activity of sodium acetate and Lactobacillus rhamnosus.
Stiles J, Penkar S, Plockova M, Chumchalova J, Bullerman LB.
Food Science and Technology Department, University of Nebraska at Lincoln, 68583-0919, USA.

The inhibition of molds by sodium acetate in deMan Rogosa Sharpe (MRS) medium, along with the antifungal activity of Lactobacillus rhamnosus VT1, was studied by the slope agar plate method. MRS agar prepared with and without sodium acetate was used as the agar substrate. A total of 42 strains of Aspergillus, Penicillium, Fusarium, Alternaria, Cladosporium, and Rhizopus were used to compare sensitivities to the inhibitory activity of sodium acetate and L. rhamnosus VT1. It was found that sodium acetate in MRS medium affected the growth of 33 of the 42 mold strains tested to various degrees. The highest sensitivity to sodium acetate was shown by strains of Fusarium, followed by strains of Penicillium, Aspergillus, and Rhizopus. L. rhamnosus VT1 also inhibited mold growth. A significant finding was that sodium acetate and L. rhamnosus VT1 in combination exhibited a possible synergistic action. Thirty-nine of the 42 mold strains tested were completely inhibited by the presence of both antifungal agents. This finding confirms that sodium acetate, a basic component of commercial MRS medium, has strong antifungal properties, and this must be taken into consideration when evaluating the antifungal activity of Lactobacillus cultures grown in MRS broth.

Crit Rev Food Sci Nutr 2002;42(3 Suppl):293-300 Related Articles, Links
The role of cranberry and probiotics in intestinal and urogenital tract Health Reid G.Lawson Research Institute, University of Western Ontario, London, Canada. gregor@uwo.ca

Several forces are driving an expanded use of nutraceuticals, particularly functional foods and probiotics, as instruments of the restoration and

maintenance of well-being. These include consumer desire to use natural rather than pharmaceutical products, the mounting scientific evidence that shows efficacy of certain nutraceutical products, and the increasing cost and continued failure of drugs to cure or prevent disease. There is now a strong scientific basis for use of cranberries to reduce the risk of E. coli adhesion to bladder cells and the onset of urinary tract infection. There is also a mechanistic basis and clinical support for use of Lactobacillus strains such as L. rhamnosus GR-1 and L. fermentum RC-14 to colonize the intestine and vagina and reduce the risk of intestinal and urogenital infections. For such alternative approaches to be successful, scientific rigor must be backed by public education and physician acceptance. Given the emergence of virulent and multidrug-resistant pathogens, time is not on our side.

Int J Food Microbiol 2001 Nov 8;70(3):213-20 Related Articles, Links

Effects of different probiotic strains of Lactobacillus and Bifidobacterium on bacterial translocation and liver injury in an acute liver injury model.

Adawi D, Ahrne S, Molin G.
Department of Surgery, Experimental Research, Malmo University Hospital,Sweden. Diya.Adawi@kir.mas.lu.se

Septic complications represent frequent causes of morbidity in liver diseases and following hepatic operations. Most infections are caused by the individual own intestinal microflora. The intestinal microflora composition is important in physiological and pathophysiological processes in the human gastrointestinal tract, but their influence on liver in different situations is unclear. We therefore studied the effect of different Lactobacillus strains and a Bifidobacterium strain on the extent of liver injury, bacterial translocation and intestinal microflora in an acute liver injury model. Sprague-Dawley rats were divided into five groups: acute liver injury control, acute liver injury + B. animalis NM2, acute liver injury + L. acidophilus NMI, acute liver injury + L. rhamnosus ATCC 53103, and acute liver injury + L. rhamnosus DSM 6594 and L. plantarum DSM 9843. The bacteria were administered rectally daily for 8 days. Liver injury was induced on the 8th day by intraperitoneal injection of D-galactosamine (1.1 g/kg BW). Samples were collected 24 h after the liver injury. Liver enzymes and bilirubin serum levels, bacterial translocation (to arterial and portal blood, liver and mesenteric lymph nodes (MLNs)), and intestinal microflora were evaluated. L. acidophilus NM1; L. rhamnosus ATCC 53103, and L. rhamnosus DSM 6594 + L. plantarum DSM 9843 decreased bacterial translocation compared to the liver injury control group. B. animalis NM2 increased bacterial translocation to the mesenteric lymph nodes. The levels of alanine aminotransferase (ALAT) were significantly lower in the L. acidophilus, L. rhamnosus ATCC 53103, L. rhamnosus DSM 6594 + L. plantarum DSM 9843 groups compared to the liver injury group. The L. rhamnosus and L. rhamnosus + L.

plantarum groups significantly reduced ALAT levels compared to the B. animalis group. All administered bacteria decreased the Enterobacteriaceae count in the cecum and colon. Administration of different lactobacilli and a Bifidobacterium strain in an acute liver injury rat model, has shown different effects on bacterial translocation and hepatocellular damage. L. acidophilus, L. rhamnosus, and L. rhamnosus + L. plantarum reduced bacterial translocation and hepatocellular damage. B. animalis NM2 increased bacterial translocation to the mesenteric lymph nodes and did not affect hepatocellular damage.

Biocell 2000 Dec;24(3):223-32 Related Articles, Links

Gut mucosal immunostimulation by lactic acid bacteria.

Vitini E, Alvarez S, Medina M, Medici M, de Budeguer MV, Perdigon G.
Catedra Inmunologia, Instituto de Microbiologia, Facultad de Bioquimica, Quimica y Farmacia, Universidad Nacional de Tucuman, Argentina.

The beneficial properties of lactic acid bacteria (LAB) on human health have been frequently demonstrated. The interaction of LAB with the lymphoid cells associated to the gut to activate the mucosal immune system and the mechanisms by which they can exert an adjuvant effect is still unclear, as well as if this property is common for all the LAB. We studied the influence of the oral administration of different geneous of LAB such as Lactobacillus casei, L. acidophilus, L. rhamnosus, L. delbrueckii subsp. bulgaricus, L. plantarum, Lactococcus lactis and Streptococcus thermophilus. We determined if the LAB assayed were able to stimulate the specific, the non-specific immune response (inflammatory response), or both. We demonstrated that all the bacteria assayed were able to increase the number of IgA producing cells associated to the lamina propria of small intestine. This effect was dose dependent. The increase in IgA+ producing cells was not always correlated with an increase in the CD4+ T cell number, indicating that some LAB assayed only induced clonal expansion of B cells triggered to produce IgA. Most of them, induced an increase in the number of cells involved in the inflammatory immune response. CD8+ T cell were diminished or not affected, with exception of L. plantarum that induced an increase at low dose. This fact would mean that LAB are unable to induce cytotoxicity mechanisms. We demonstrated the importance in the selection of LAB to be used as gut mucosal adjuvant. The different behaviours observed among them on the gut mucosal immune response, specially those that induce inflammatory immune response, show that not all the LAB can be used as oral adjuvant and that beneficial effect of them can not generalized to genous or specie_The immunoadjuvant capacity would be a property of the strain assayed.

Br J Nutr 2000 Feb;83(2):167-
Enhancement of natural and acquired immunity by Lactobacillus rhamnosus (HN001), Lactobacillus acidophilus (HN017) and Bifidobacterium lactis (HN019).
Gill HS, Rutherfurd KJ, Prasad J, Gopal PK.
Milk and Health Research Centre, Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand.
h.s.gill@massey.ac.nz

Consumption of lactic acid bacteria (LAB) has been suggested to confer a range of health benefits including stimulation of the immune system and increased resistance to malignancy and infectious illness. In the present study, the effects of feeding Lactobacillus rhamnosus (HN001, DR20), Lactobacillus acidophilus (HN017) and Bifidobacterium lactis (HN019, DR10) on in vivo and in vitro indices of natural and acquired immunity in healthy mice were examined. Mice were fed daily with L. rhamnosus, L. acidophilus or B. lactis (10(9) colony forming units) and their immune function was assessed on day 10 or day 28. Supplementation with L. rhamnosus, L. acidophilus or B. lactis resulted in a significant increase in the phagocytic activity of peripheral blood leucocytes and peritoneal macrophages compared with the control mice. The proliferative responses of spleen cells to concanavalin A (a T-cell mitogen) and lipopolysaccharide (a B-cell mitogen) were also significantly enhanced in mice given different LAB. Spleen cells from mice given L. rhamnosus, L. acidophilus or B. lactis also produced significantly higher amounts of interferon-gamma in response to stimulation with concanavalin A than cells from the control mice. LAB feeding had no significant effect on interleukin-4 production by spleen cells or on the percentages of CD4+, CD8+ and CD40+ cells in the blood. The serum antibody responses to orally and systemically administered antigens were also significantly enhanced by supplementation with L. rhamnosus, L. acidophilus or B. lactis. Together, these results suggest that supplementation of the diet with L. rhamnosus (HN001), L. acidophilus (HN017) or B. lactis (HN019) is able to enhance several indices of natural and acquired immunity in healthy mice.

Eur J Oral Sci 2002 Jun;110(3):218-24 Related Articles, Links
Selection of dairy bacterial strains as probiotics for oral health.
Comelli EM, Guggenheim B, Stingele F, Neeser JR.
Nestle Research Center, Lausanne, Switzerland. ecomelli@scripps.edu

The aim of the present study was to select bacterial strains with potential properties as oral probiotics, namely for the prevention of dental caries. We examined 23 dairy microorganisms, out of which we identified two Streptococcus thermophilus and two Lactcoccus lactis strains that were able to adhere to saliva-coated hydroxyapatite beads to the same extent as Streptococcus sobrinus OMZ176. Two of them, Strep. thermophilus NCC1561 and

Lactoc. lactis ssp. lactis NCC2211, were further successfully incorporated into a biofilm mimicking the dental plaque. Furthermore, they could grow in such a biofilm together with five strains of oral bacterial species, representative of supragingival plaque. In this system, Lactoc. lactis NCC2211 was able to modulate the growth of the oral bacteria, and in particular to diminish the colonization of Streptococcus oralis OMZ607, Veillonella dispar OMZ493, Actinomyces naeslundii OMZ745 and of the cariogenic Strep. sobrinus OMZ176. These findings encourage further research with selected non-pathogenic dairy bacterial strains with the aim to decrease the cariogenic potential of dental plaque.

Eur J Clin Nutr 2002 Sep;56(9):843-9 Related Articles, Links

Long-term consumption of fermented dairy products over 6 months increases HDL cholesterol.

Kiessling G, Schneider J, Jahreis G.
Friedrich Schiller University, Institute of Nutritional Science, Jena, Germany.

OBJECTIVE: Assessment of the hypocholesterolaemic effect of yoghurt supplemented with Lactobacillus acidophilus 145 and Bifidobacterium longum 913 in women. DESIGN: The cross-over study consisted of three periods (7 weeks each): first period, control yoghurt for all 29 women; second period, probiotic yoghurt for 18 women, control yoghurt for 11 women; third period, the reverse of that in the second period. SETTING: Department of Nutritional Physiology, Institute of Nutritional Science, Friedrich Schiller University, Jena. SUBJECTS: Twenty-nine healthy women, aged 19-56 y. Fifteen of these were normocholesterolaemic and 14 women were hypercholesterolaemic. INTERVENTION: Yoghurt (300 g) daily containing 3.5% fat and starter cultures of Streptococcus thermophilus and L. lactis. Probiotic yoghurt was the control yoghurt enriched with L. acidophilus 145, B. longum 913 and 1% oligofructose (synbiotic). RESULTS: The mean serum concentration of total cholesterol and the LDL cholesterol was not influenced by the synbiotic ($P>0.05$). The HDL concentration increased significantly by 0.3 mmol/l ($P=0.002$). The ratio of LDL/HDL cholesterol decreased from 3.24 to 2.48 ($P=0.001$). CONCLUSIONS: The long-term daily consumption of 300 g yoghurt over a period of 21 weeks (control and synbiotic) increased the serum concentration of HDL cholesterol and lead to the desired improvement of the LDL/HDL cholesterol ratio. doi:10.1038/sj.ejcn.1601399
